

2009 Annual Report



Fire Research And Management Exchange System



<http://frames.nbii.gov>

2009 Annual Report
Fire Research And Management Exchange System
(FRAMES)

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All Photography by Karen Wattenmaker

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“Half the battle of providing the best science is accumulating it under one roof.”

- Tim Swedberg, JFSP Communications Director,



Figure 1. The FRAMES Home Page

Introduction

At the close of 2009, the Fire Research And Management Exchange System (FRAMES) celebrated its seventh year online. The construction of FRAMES began in 2002 at the University of Idaho with funding support from the US Department of Agriculture Forest Service's Missoula Fire Lab in response to the need for cataloging and organizing wildland fire tools, data, and documents into a single system. Following the 1999 Joint Fire Science Program's (JFSP) conference and workshop entitled, "Crossing the Millennium: Integrating Spatial Technologies and Ecological Principles for a New Age in Fire Management"; there was a clear need for managing what was described as a "deluge of data" and other information that would become increasingly available in the 21st century to wildland fire and other natural resource managers. FRAMES was proposed to be a mechanism for ongoing information exchange and technology transfer between the wildland fire management and research communities. In 2003, a partnership with the US Geological Survey's National Biological Information Infrastructure (NBII) provided the technical foundation and federal legitimacy for meeting security and legislative requirements for FRAMES to continue development and implementation. In addition to providing a federal technological home for FRAMES, the continued collaboration with the NBII program has advanced their mission and capacity to deliver natural resources and wildland fire data and information to a broad user community.

In 2006, an interagency interim steering committee made up of representatives who had invested in FRAMES formed to determine next steps. With support from the US Forest Service and USGS/NBII, the Keystone Center facilitated the development of the FRAMES Strategic Plan (2007-2012), which emerged from over 100 telephone interviews and an online survey of fire and natural resource professionals. The broad vision of FRAMES focuses on developing a national wildland fire informatics system and clearinghouse that organizes, synthesizes, evaluates, distributes, tracks use, and measures the efficacy of wildland fire and fire-related information and technological resources¹. To implement this vision, the FRAMES mission supports wildland fire and natural resource professionals and policymakers by promoting and facilitating information and technology sharing, exchange, collaboration, and development through a state-of-the-art clearinghouse and web portal. The use of FRAMES portal informatics technologies² would be used to help eliminate redundancy, reduce costs, and promote increased productivity and efficiency for the professionals responsible for wildland fire and fire-related research and management.

In 2008, along with continued support from USGS/NBII, a new partnership, the Wildland Fire Science Partnership (WFSP), was formed between the USDA Forest Service's Rocky Mountain Research Station (RMRS), the University of Idaho (UI), and the University of Montana (UM). The WFSP brings together programs established at each of the three partner institutions including FRAMES and Wildland Fire Science Program (UI); National Center for Landscape Fire Analysis (UM); and Missoula, MT Fire Sciences Lab's Fire, Fuels & Smoke Science Program, and the Wildland Fire Management Research, Development, & Application (RD&A) Program. This University – Forest Service partnership was created to "improve the management of wildland fire by integrating science, technology, education, and practical experience."³ The stated goals of the partnership are:

- **Increase core fire and fuel science and measurement capabilities** for the improvement of resource management and fire planning.
- **Produce timely, reliable, and consistent fire and fuel information** for resource managers to assess and implement decisions at a landscape scale.
- **Increase access to critical data and applications** to support documentation,

¹ Text is from the FRAMES Strategic Plan 2007-2012.

² "Informatics" is the collection, classification, storage, retrieval, and dissemination of recorded knowledge from the Center for Biological Informatics at <http://biology.usgs.gov/cbi/informatics/>.

³ Quote is from the Wildland Fire Science Partnership Charter 2009.

Introduction

- implementation, and review of decisions and accomplishments.
- **Develop the skills and capabilities of future fire managers** by providing experiential education, research opportunities, access to relevant science data and applications and training⁴.

The WFSP merges capabilities and capacities across state and federal agencies and unites them in a common cause. FRAMES contributes to the partnership by providing the technological capacity and resources for the WFSP to web-deliver the products that are stated in the WFSP Charter and FRAMES benefits from the knowledge and stability the partnership provides. In 2009, the Interim Steering Committee that guided FRAMES development disbanded. In the coming year, FRAMES anticipates to once again find guidance through further integration with either, the Wildland Fire Management Research, Development, & Application (RD&A) Program or the Science Applications and Integration (SAI) Program. As all of wildland fire enters a new decade of opportunities and challenges, FRAMES continues to grow its capacity to help wildland fire and other natural resource professionals with their information and tool needs in support of planning and decision making.

Until further integration within existing wildland fire federal programs occurs, FRAMES development and management is guided by the FRAMES Strategic Plan (2007-2012). The Plan identifies programmatic and organizational goals that emphasize six principal areas of effort including:

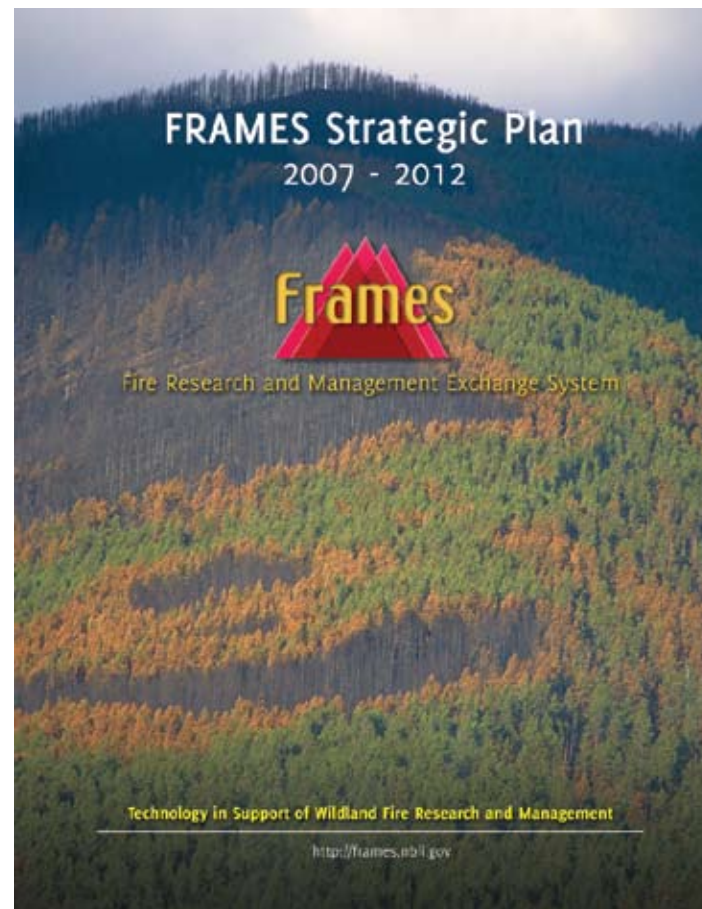


Figure 2. Strategic Plan

⁴ Goals are taken from Wildland Fire Science Partnership Charter 2009.

Goals

Programmatic Goals

1. **Provide Content and Increase Content Utility.** Develop a rich and usable base of content that is useful to wildland fire and natural resource professionals and policymakers.
2. **Expand Services and Increase User Base.** Identify opportunities to work with wildland fire and natural resource professionals (i.e., managers, practitioners, and researchers) to develop customized services that are complementary with the FRAMES informatics architecture and that target their common technology transfer and science delivery needs.
3. **Increase Name Recognition and Program Awareness:** Develop marketing materials for outreach and cultivate relationships with agencies and potential FRAMES users and contributors.
4. **Maintain and Upgrade the Infrastructure.** Build a technological infrastructure that can support wildland fire and fire-related informatics.

Organizational Goals

5. **Ensure Financial Support.** Determine staffing requirements and develop a sustainable system of financial support to ensure that FRAMES remains viable.
6. **Provide Responsive Governance and Management.** Establish a long-term plan for governance and accountability for the management and implementation of FRAMES.

This report summarizes activities and accomplishments for the calendar year of 2009. Additional details about FRAMES can be found at <http://frames.nbi.gov>.



FRAMES, providing information management, services, and tools for wildland fire and natural resource professionals.

- David Brownlie, Fire Ecologist, Southeast Region, USFWS,

2009 Accomplishments: CONTENT

CONTENT: Resource Cataloging System (RCS)

an ASCII File (data), PDF (document), and executable software program (tool). Each of these can 1) be uploaded to FRAMES and then linked back to the cataloged record or 2) stored on a secure server offsite from FRAMES and the URL linked to the cataloged record.

As records are cataloged into the six different types of FRAMES records they may also be categorized by Subject Area, Geographic Area, or Partner Site. Often a record will be categorized in more than one area. For example, fire history data can fall under the Fire History subject area, but it may also be specific to a particular Geographic Area and cataloged there as well. All cataloged records are also available in a continuous list that is on the FRAMES home page.

In summary, there are 6 Resource Groups that are subdivided into Resource Types and in some instances Subtypes. When cataloging, a record is created following this pathway: Resource Group: Resource Type: Resource Subtype. By relating records they can be “prepackaged” for targeted consumption. Searching is improved because one search will yield all resources that are relevant.

Resources Catalog Tool v2.0

Select Action | Select Resource Group | Enter General Resource Information | Enter People Information | Enter Specific Resource Details | Link To Existing Resource | Key Words | Review/Save/Submit

Select Action:

- ☒ Create New Resource
 - Create a resource in the draft database
- ☐ Edit Draft Resource
 - Edit a resource in the draft database
- ☐ Link Existing Resources Together
 - Add new links to a resource in the draft database
- ☐ Copy Resource for Similar Duplication
 - Create a copy of a resource, assigning it a new ID

Next

Enter Resource Title: Natural Fuels Photo Series and the Digital Photo Series

Select Resource Group:

- ☐ Web Pages
- ☐ Documents
- ☒ Tools
- ☐ Data
- ☐ Projects
- ☐ Programs

Enter Resource Title Abbreviation:

Select Resource Type:

- ☐ Computer Program
- ☐ Computer Program Suite
- ☐ Database
- ☐ Mapping Application
- ☐ Modeling Application
- ☒ Web Application, Other
- ☐ Web Application, System
- ☐ Analytical Application
- ☐ Internet Map Service
- ☐ Web Service

Next

Figure 6. The Online Cataloging Tool first window

CONTENT: Resource Cataloging System (RCS)

Resources Catalog Tool v2.0

Select Action | Select Resource Group | Enter General Resource Information | Enter People Information | Enter Specific Resource Details | Link To Existing Resource | Key Words | Review/Save/Submit

Enter General Resource Information

Title: Natural Fuels Photo Series and the Digital Photo Series

Resource Group: Tools

Resource Type: Web Application, Other

Last Updated: 06/24/2009

Frames Resource ID: 965

External Identifier: Add New

Version: no_data_entered

Description: The natural fuels photo series project is designed to help land managers appraise fuel and vegetation conditions in natural settings. Each group of photos in a series includes inventory information summarizing vegetation composition, structure and loading and, as appropriate, woody material loading and density by size

Figure 7. RCS Citation Entry

Update and Status

In the fall of 2008, more than 1100 existing records currently available live on the FRAMES homepage were moved into the RCD. Upon completion of that move, FRAMES staff began the migration of approximately 5000 records from two JFSP funded projects (FIREHouse Northwest and Alaska) with some additional support from the NBII, as well as records compiled during the 2007 US Forest Service Research and Development Wildland Fire Strategic Program Area Review effort. The implementation and testing of the On-line Cataloging Tool proceeded concurrent with these efforts. The primary objective driving the development of the cataloging tool is to produce an interface that is as intuitive and as simple to use as possible so that researchers, managers, and others can create and edit records for their resources.

In 2009, most of the effort spent on the RCS was related to: 1) developing the linkages between the RCD, the Browse Capabilities, and the Visualization; and 2) cleaning up the records imported during 2008, which was accelerated greatly by the hiring of two part-time content/cataloging specialists. The former effort consisted of continued work with NACSE and NBII to: 1) specify, implement and test the individual record displays (for the Visualization); 2) specify, implement and test the import of metadata into the NBII knowledge directory (for the Search and Browse Capabilities); and 3) develop and display queries for predefined browsing of the records, by geographic area, subject area, and occasionally by partner site. Users can search and/or browse for all records that have been published in the RCD, and publicly accessible content is updated nightly, meaning that changes to records (added records, edits, “un-publishing,” or deleted records) by FRAMES staff on one day are registered in the public view the next day. The ability to provide online record data entry and a dynamic display has been a goal of FRAMES since its inception, and it is essential to FRAMES’ ability to provide timely access to fire research and management information.

2009 Accomplishments: CONTENT

CONTENT: Resource Cataloging System (RCS)

RCS and Other Content Metrics

As outlined in the FRAMES Strategic Plan, metrics are an important part of tracking the growth and utility of FRAMES. Content metrics are perhaps the most valuable metrics that FRAMES can gather. In 2009, FRAMES metrics from the USGS/NBII were only captured for part of the year due to an IP changeover in August 2009, which was mandated by the USGS to address network address translation requirements. The analytics data collection stopped after the changeover and the issue was not identified until later in the year resulting in an information gap for the annual metrics. The following metrics were available for 2009. Metrics for RCS were provided by NACSE.

Table 1. Record Tallies

Total live records in RCS	6548
data records	85
document records	6159
program records	3
project records	108
tool records	127
webpage records	66

Geographic Areas	
alaska	3492
northwest	1845
southern	1793
southwest	1596
other geographic areas have records associated with them, as well, but won't be sorted in the display until the geographic areas are created	

Partner Sites	
FIREMON	pending
FFS	173

Subject Areas	
administration	68
aviation	3
climate	572
communications	133
economics	200
emissions & smoke	478
fire behavior	1045
fire ecology	2488
fire effects	4073
fire history	561
fire occurrence	241
fire prevention	326
fuels	1948
hazard & risk	325
intelligence	96
logistics	62
mapping	368
models	1092
monitoring & inventory	340
outreach	206
planning	803
prescribed fire	961
regulations & legislation	53
restoration & rehabilitation	303
safety	103
weather	440

CONTENT: Resource Cataloging System (RCS)

RCS Next Steps

A list of requirements is being compiled by FRAMES staff and others for version 3.0 of the RCS. A draft of these requirements will be available during the summer of 2010. Also, during the summer a workshop is planned for FRAMES staff, RCS developers from the Northwest Alliance for Computational Science and Engineering (NACSE) and USGS / NBII, and staff from the University of Idaho Library. The UI Library staff will help make sure that requirements are included in Version 3.0 to ensure that the documents resource group in FRAMES is compatible with the Library's MARC language. The idea is to be able to push and pull records between FRAMES and the UI Library. Once these records are incorporated into the UI Library system they will also be available through WorldCat, the world's largest library catalog. During the summer of 2010, it is also anticipated that the contractor Science Applications International Corporation (SAIC), who has a great deal of programming expertise with the Oracle Portal software, will be involved with developing the final draft of the requirements for Version 3.0 of the RCS. The targeted release of Version 3.0 is 2011. Online help and tutorials will also be provided to potential catalogers as part of the Version 3.0 package and FRAMES staff will also be available for additional help as needed.

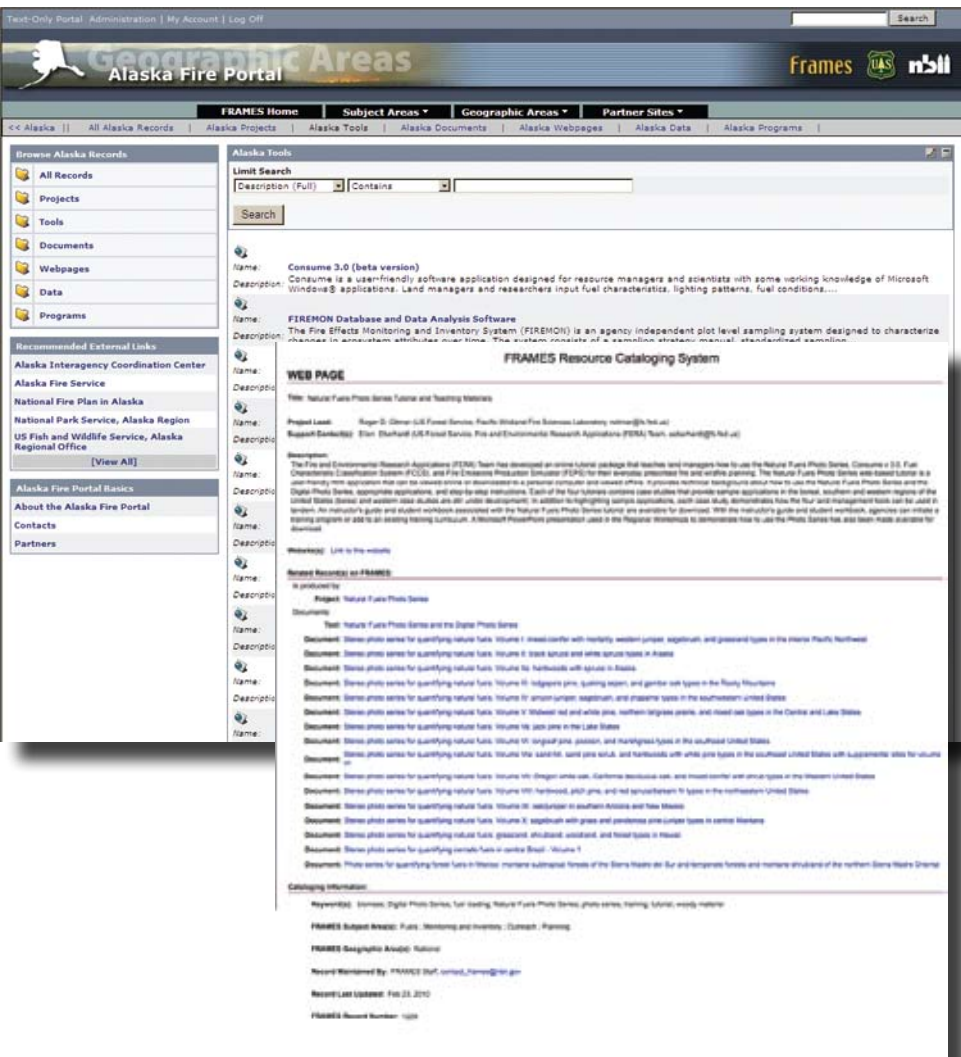


Figure 8. RCS Resource Output Display

2009 Accomplishments: CONTENT

CONTENT: FRAMES Homepage

CONTENT: FRAMES Homepage

Overview

The FRAMES Homepage provides an overview of content and collaboration services provided through FRAMES. Specifically, it describes how content display is structured (by accessing geographic area, subject area, and partner site portals), provides access to notices regarding current job postings and upcoming conferences, provides information about the collaboration services available through the log-in side of FRAMES, highlights a few fire research and management tools, and highlights the FRAMES involvement in the Wildland Fire Science Partnership and FRAMES Funding Support. Content in the FRAMES Resource Cataloging System can either be browsed (refer to the list of resource types in the upper left of the page) or searched (refer to the search box in the upper right of the page).

Homepage Revisions

Minor homepage updates occurred during 2009. These updates highlighted key partnerships and content areas.

Homepage Next Steps

Upon completion of the portal software upgrade in 2010, there will be much more flexibility regarding webpage layout and design. The new software will provide an opportunity to get away from the current “boxy” look and will have more flexibility in how to display website navigation. FRAMES will undertake a substantial homepage revision during 2010.



Figure 9. The FRAMES Home Page

CONTENT: FRAMES Subject Areas

CONTENT: FRAMES Subject Areas

Overview

FRAMES subject area portals contain information relevant to topics of interest within the wildland fire community. Currently, FRAMES identifies 26 subject areas reflecting categories proposed by wildland fire researchers and as part of a draft of the National Wildland Fire Enterprise Architecture developed by the National Wildland Fire Coordinating Group (NWCG). The goal of FRAMES is to have the subject areas be collaborative spaces, managed by experts in the subject area for other content providers and content users. The only subject area currently being managed by subject experts is the Fire History Subject Area; the remaining subject area portals remain in the prototype phase; most don't highlight a significant amount of content, but they allow a user to browse records in the RCS related to the subject area.

The current subject areas are:

administration, aviation, climate, communications, economics, emissions & smoke, fire behavior, fire ecology, fire effects, fire history, fire occurrence, fire prevention, fuels, hazard & risk, intelligence, logistics, mapping, models, monitoring & inventory, outreach, planning, prescribed fire, regulations & legislation, restoration & rehabilitation, safety, and weather.

Upcoming subject areas include: aquatic, and social sciences.

Update

In 2009, the primary effort related to the management of the subject areas was the revision of the structure and display of the browse feature within each subject area.

Subject Areas Next Steps

Efforts are ongoing to encourage experts to assume the role of community manager for each subject area portal.



Figure 10. Sample Subject Area page and headers

2009 Accomplishments: CONTENT

CONTENT: FRAMES Geographic Areas

Overview

Within the FRAMES Geographic Areas, wildland fire content is aggregated at a geographic level relevant to wildland fire management. The FRAMES Geographic Areas correspond to the boundaries of the 11 Geographic Area Coordinating Centers (GACC) designated by the National Interagency Fire Center (NIFC). Each FRAMES Geographic Area provides an opportunity for collaboration between researchers and managers located within that particular area. Currently, FRAMES is collaborating on four geoportal projects: the Alaska Fire Portal, the Northwest Fire Portal, the Southern Fire Portal, and the Southwest Fire Portal. Additionally, the Rocky Mountain Fire Portal is under development. In each case, FRAMES is working with local researchers to provide access to geographically-based and nationally relevant data, documents, and tools.

A New Geographic Area: The Southwest

FRAMES created the Southwest Fire Portal in response to growing collaborative efforts with researchers and managers in the southwestern United States. This is part of the FRAMES effort to provide access to geographically-based and nationally relevant data, documents, and tools.

The Joint Fire Science Program (JFSP) Regional Science Delivery and Outreach Consortia

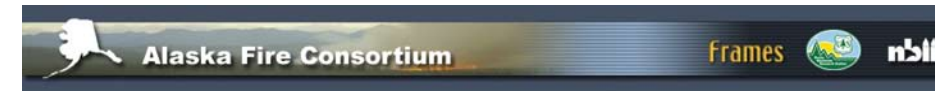
Overview



In May 2009, JFSP released a Request For Applications (2009-S-04) soliciting start-up proposals to support regional consortia of fire science providers and managers to enhance fire science delivery and adoption. Their goal is to develop a national network of regional consortia, each operating as a willing and formal association working together to enhance fire science delivery and adoption within a specified geographic region. Two of the key objectives of the RFA were: 1) dissemination of information and building relationships, which could include “develop[ing], promot[ing], and manag[ing] regional communities of

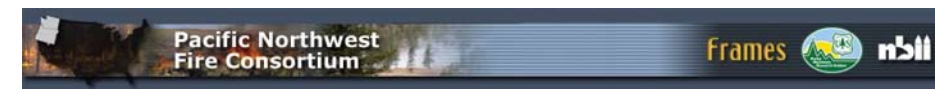
practice to support peer-to-peer networking and knowledge exchange;” and 2) listing and describing existing research and synthesis information, which could include “develop[ing] and maintain[ing] a regional, quick-reference web catalog of existing fire and fuels research results” and “develop[ing] and maintain[ing] a regional, geo-spatial web catalog of new and ongoing research projects.” FRAMES’ geoportal approach to providing access to content, the collaboration services offered by FRAMES, and upcoming effort to establish a map-interface for the RCS complement the goals of the JFSP regional consortia. From this RFA, the JFSP has provided start-up funds to 9 consortia, five of which are currently collaborating with FRAMES.

CONTENT: FRAMES Geographic Areas



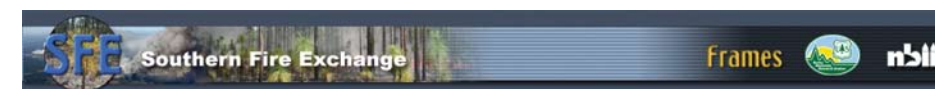
Consortium for Wildland Fire Science Delivery and Outreach in Alaska

The goals of the Alaska Fire Consortium are to: 1) communicate the results of existing and on-going fire science to federal and state land and fire managers; 2) communicate the needs of fire managers to the scientific community; and 3) optimize the language used and the process of fire science delivery so that the information is practical and readily implemented in the field. Their planned activities include updating and coordinating existing fire science delivery products with FRAMES specifically identified among those existing products FRAMES already supports science delivery activities in Alaska, such as the Alaska Fire Effects Reference Database, which was originally a FIREHouse (Northwest and Alaska Fire Research Clearinghouse) product that has been rolled into the FRAMES RCS. FRAMES is also hosting the consortium’s website (currently located under the Alaska Fire Portal).



Pacific Northwest Regional Consortium for Enhanced Fire Science Delivery and Adoption

FRAMES is supporting the Pacific Northwest Fire Consortium by hosting the consortium’s website (currently located under the Northwest Fire Portal). FRAMES will continue to support the consortium by assisting with the: 1) expansion of the website to allow members of the consortium and end-user communities to maintain real-time communication and collaboration; and 2) utilization of the RCS to document fire science projects.



The Southern Fire Exchange: Putting Fire Science on the Ground

The Consortium’s primary objectives are to coordinate, improve, and increase access to existing fire science dissemination mechanisms, while developing syntheses, workshops/ demonstrations, and enhancements to existing web-based platforms to fill gaps in available resources. A geographic area portal for the Southern region, the Southern Fire Portal, has existed on FRAMES since 2003. A consortium page is currently under development. Two of the stated goals of the Consortium are to expand the utility of the Southern Fire Portal and to hire an individual experienced in website development, implementation, and evaluation to be responsible for interacting with the Southern Fire Portal and FRAMES. FRAMES staff have had a number of conversations with the Consortium (meetings and phone calls) and FRAMES has been asked to assist with many of the specific activities outlined in their proposal to JFSP (e.g. research, information, syntheses, presentations, newsletter distribution, workshops/trainings, The Southern Fire Exchange believes that FRAMES is an excellent platform for the SFE to build on, and are prepared to provide collaborative assistance for expansion and enhancement of the SFP.

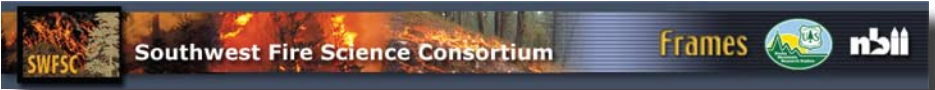
FRAMES:
Information
at your fingertips.

2009 Accomplishments: CONTENT
CONTENT: FRAMES Geographic Areas



Southern Rocky Mountain Ecoregion Fire Consortium

FRAMES staff have exchanged communications with members of the Southern Rocky Mountain Consortium, and provided a demonstration of the FRAMES site during a Consortium Webinar. FRAMES is currently in the process of building a Rocky Mountain Fire Portal, a Southern Rockies Consortium page, and looks forward to continuing the collaboration with the Southern Rockies Consortium.



Southwest Fire Science Consortium

FRAMES created a Southwest Fire Portal in response to the growing collaborative efforts with researchers and managers in the southwest, and FRAMES now features a Consortium webpage. FRAMES created a logo for the Consortium at their request, and FRAMES also set up collaborative services accounts on FRAMES for them. FRAMES staff have had numerous e-mail and telephone communications with members of the Southwest Consortium, demonstrated the FRAMES site during a Consortium sponsored Webinar, and traveled to Tucson and Albuquerque to attend Consortium workshops at their invitation. FRAMES staff presented at both of these workshops, handed out brochures, and put up a small FRAMES display. FRAMES has developed a close working relationship with this Consortium and looks forward to continued collaboration.

Next Steps

In addition to supporting these 5 consortia, FRAMES will approach the other consortia to see whether they're interested in utilizing FRAMES. Ideally, FRAMES will be able provide a standardized foundation for collaboration between all of the JFSP consortia, and help them leverage each other's activities, as well as help prevent duplication of efforts in terms of web-delivery. As mentioned before, in 2010 FRAMES plans to develop a basic map interface to the RCS, perhaps utilizing GoogleMaps technology (similar to the USGS Alaska Science Portal: <http://alaska.usgs.gov/portal/>). This interface will allow the regional consortia spatially explicit access to resources relevant to their needs.



CONTENT: FRAMES Partner Sites

Ongoing Partnerships

FRAMES provides web hosting and other services to several partners in an ongoing relationship. These services may include one or any combination of the following: 1) hosting of a public site 2) hosting of a collaboration server (login required) site 3) hosting of an application, database, tool, data, or other text based document and 4) metadata management for partner resources. FRAMES also provides consultation, portal support, web design, marketing support, and online training services for partners. However, for an easy breakdown, the following will list only publicly hosted sites for FRAMES partners.



Figure 11. WFDSS and JFSP Tools web sites

2009 Accomplishments: SERVICES

CONTENT: FRAMES Partner Sites

- **Assessing Burn Severity** - JFSP funded the Rapid Response project “Assessing the Causes, Consequences and Spatial Variability of Burn Severity” to be conducted during and after active fire incidents. The project’s goal was to investigate the spatial variability in fire effects and to explore relationships between burn severity and fuels, fire behavior, local weather, and topography.
- **Fire and Fire Surrogates (FFS) Study** - FFS was a national JFSP study to assess the effects of fire and fire surrogate fuel treatments. The goal was to quantify the costs and ecological consequences of alternative fire and fire surrogate restorative treatments in a number of forest types and conditions in the United States. Priority was given to forests with low to moderate severity natural fire regimes.
- **Fire Effects Monitoring and Inventory Protocol (FIREMON)** - FIREMON is an agency independent plot level sampling system designed to characterize changes in ecosystem attributes over time. FIREMON has been integrated with the National Park Service Fire Ecology Assessment Tool into a new monitoring tool called FFI. FIREMON will still be supported but further development and updates may be suspended.
- **Fire Ecology Assessment Tool (FEAT) and FIREMON Integrated (FFI)** - FFI is a monitoring software tool designed to assist managers with collection, storage, and analysis of ecological information. It was constructed through a complimentary integration of FEAT and FIREMON.
- **Fire History Analysis and Exploration System (FHAES)** - FHAES is the result of an effort to redevelop and enhance components of the FHX2 computer program, originally a DOS-based program considered to be the standard for fire history analysis. FHAES is a web-based design that is user-friendly and easily accessible to a broad range of users.
- **Fire Regime Condition Class (FRCC)** - FRCC is an interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels, and disturbance regimes. Assessing FRCC can help guide management objectives and set priorities for treatments.
- **First Order Fire Effects Model (FOFEM)** - FOFEM is a computer program developed to meet the needs of resource managers, planners, and analysts in predicting and planning for fire effects. FOFEM provides quantitative fire effects information for tree mortality, fuel consumption, mineral soil exposure, smoke and soil heating.
- **Human Dimensions and Fire Social Sciences (HDFSS)** - The goal of the HDFSS is to provide social science fire managers can use. Teams of scientists and fire managers find and synthesize the best available social science and apply it to fire management. The teams then deliver the results in applications and tools designed by fire science users and researchers working together to create useful knowledge in forms that make sense to fire managers.
- **JFSP Software Tools and Systems (STS) Study** - JFSP, in concert with the National Interagency Fuels Coordination Group (NIFCG), is funding a multi-phased study to assess existing wildland fire management software tools and systems, develop a collaborative software system architecture, and then pilot test the architecture by developing a prototype system, the Interagency Fuels Treatment Decision Support System (IFT-DSS).
- **National Interagency Fuels, Fire, and Vegetation Technology Transfer (NIFTT)** - NIFTT is chartered by the National Interagency Fuels Coordination Group (NIFCG). NIFTT assists NIFCG in fulfilling its purpose of developing and implementing an effective

CONTENT: FRAMES Partner Sites

interagency fuels management program to address risks related to severe fires in wildland-urban interface communities and to restore healthy ecological systems in other wildland areas. NIFTT and FRAMES have just formed a new partnership and FRAMES is assuming management responsibility for NIFTT.

- **Northern Rockies Climate and Fire (NRCF) Project** - JFSP funded this 3-year research project to identify the climate drivers of regional fire and fuel dynamics in the Northern Rockies in the past, present, and future. Regional fire years were identified from two sources: multicentury tree-ring reconstructions and multidecadal fire atlases.
- **Wildland Fire Decision Support System (WFDSS)** - This intent of this site is to provide dynamic WFDSS information for WFDSS GA Editors and WFDSS Spatial Data. This site is specific to the WFDSS application and is meant to provide information to users of WFDSS and to individuals who do not have access to WFDSS. The information provided is dynamic and updates are ongoing.

Something New; Something NIFTT

The National Interagency Fuels, Fire, and Vegetation Technology Transfer (NIFTT) program was established to coordinate, develop, and transfer consistent, efficient, science-based fuel and fire ecology assessment tools and trainings. The Landscape Fire and Resource Management Planning Tools Project (LANDFIRE) was established to produce data products that are designed to facilitate national- and regional-level strategic planning and reporting of wildland fire management activities. NIFTT is responsible for creating tools that utilize the LANDFIRE data and also for training land and wildland fire managers in the appropriate use of these tools and data.



Figure 12. The NIFTT Web Site

In July 2009, the staff of FRAMES was approached by the US Forest Service and asked to assume administration of NIFTT. Since 2003, FRAMES has collaborated with NIFTT and LANDFIRE. NIFTT and LANDFIRE are sponsored by the National Interagency Fuel Coordination Group (NIFCG). NIFCG was established under the guidance and direction of the Fire Directors of the Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), the National Park Service (NPS), US Forest Service (FS), and the US Fish and Wildlife Service; the Chief of the Forest Service, and the Directors of the named Department of Interior Bureaus and the and the Deputy Commissioner of the Bureau of the Bureau of Indian Affairs.

The FRAMES infrastructure and the Wildland Fire Program at the College of Natural Resources have benefited NIFTT specifically by 1) hosting several websites that are under NIFTT’s purview; 2) providing secure logged in space for staff and stakeholders of NIFTT to collaborate on tool and training development; 3) providing tools for registering, managing, and delivering on-line courses; and 4) providing expertise in the development of on-line training courses. The purpose of the new agreement is to develop comprehensive curricula of courses, workshops, help aids, and skill development tools for current fuel, fire and vegetation management applications.

Website hosting and services for wildland fire researchers and managers.

2009 Accomplishments: SERVICES
CONTENT: Site Metrics

Communities, Logins, and Notices

In 2009, FRAMES metrics were only captured for part of the year due to an IP changeover in August 2009, which was mandated by the USGS to address network address translation requirements. The analytics data collection stopped after the changeover and the issue was not identified until later in the year resulting in an information gap for the annual metrics.

Communities

There were 10 new communities created in 2009:

- FRAMES Cataloging Community
- Wildland Fire Management RD&A Collaboration Home
- SA&I Program Collaboration Community
- JFSP IFT-DSS Proof of Concept Testing Community
- Alaska Fire Consortium Collaboration Community
- PNW Fire Consortium Collaboration Community
- SRME Fire Consortium Community
- SW Fire Science Consortium Community
- Anaktuvuk River Fire Monitoring Home
- UI Cyberinfrastructure Community

Logins

There were 223 login accounts created in 2009 for a grand total of 788 user accounts on FRAMES. FRAMES partners and staff have login accounts that are used to 1) manage partner website content, 2) manage the FRAMES home page, 3) manage projects, 4) communicate, collaborate, and share information, and 5) beta test tools.

Notices

As a service to FRAMES partners and others in the wildland fire and natural resources communities, FRAMES offers notice posting. Notices can be about upcoming conferences, jobs, and other events. There are 7 notice types listed below. In FY 2009, 74 notices were added to FRAMES.

- 10 call for papers
- 13 conference or symposium
- 28 general
- 7 jobs
- 3 request for proposals
- 4 trainings
- 9 workshops

74 Total Notices

As with cataloged records, notices may also be categorized and sorted by subject and geographic areas, and by partner site. A project to update and simplify the notice posting system is scheduled for 2010 to improve efficiencies in entering and displaying the notices information.

SERVICES: Overview

Training sessions on the portal technology provide a key overview for FRAMES partners and users with new login accounts. Since the collaboration services are so widely used, FRAMES developed a special Portal Training Community for login users. Once an account is set up for a new user and they login to FRAMES, they have access to this community and encouraged to go through a set of on-line tutorials that introduce them to portal technology and the collaboration services.

The FRAMES Portal Training Community was developed during 2008 and is accessible to all MyFRAMES users. Through this community, users can access the following online tutorials (slideshows with audio): "Introduction to the My FRAMES Portal," "Introduction to Collaboration Services," "Using Announcements," "Using Documents," and "Using Calendars. FRAMES staff are also available to assist new users as they become familiar with the variety of FRAMES features and functionality.

FRAMES has also arranged through USGS/NBII to have WebEx meetings when necessary for visualizing material during a conference call. This service has been very useful at times and USGS/NBII has been very accommodating for setting up sessions for the FRAMES staff and partners as needed. Beginning in 2009, FRAMES will also have on demand access to similar web conferencing features through AT&T to facilitate online meetings, demonstrations and training.

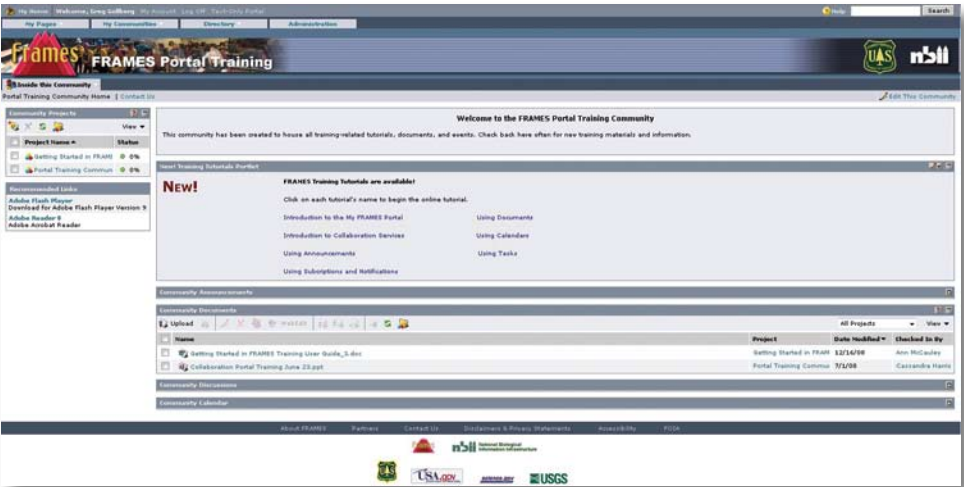


Figure 13. FRAMES Portal Training Community

2009 Accomplishments: SERVICES

SERVICES: Collaboration/Communities



One of the valuable features of the Portal technology involves the ability to create collaboration communities. These communities provide users with an opportunity to work in a collaborative environment to share documents, calendars, hold discussion threads, develop tasks and timelines, and other features. FRAMES offers this service to any groups involved in fire related projects that need a secure login environment that enables a distributed team of people to

work collaboratively in an efficient manner. Some of the communities have relationships with partner sites, subject areas, or geographic areas, while others simply serve groups of individuals as secure places to work together.

In 2009, the list of collaborations server communities that FRAMES is providing services and support for are the following:

- **Alaska Fire Effects Task Group (FETG) Community** – This community was developed for use by the interagency Alaska Wildland Fire Coordination Group Research Committee's Fire Effects Task Group. Sixty-nine user accounts were created in conjunction with this community. It was designed to provide access to key FETG information and to share documents, primarily in conjunction with the group's annual tech transfer workshop.
- **Alaska Fire Consortium Community** – This community was developed for use by the Consortium for Wildland Fire Science Delivery and Outreach in Alaska. It was designed primarily to share documents and calendars, in order to facilitate the establishment and management of the consortium. Fourteen user accounts were created in conjunction with this community.
- **Anaktuvuk River Fire Community** – This community was developed to share document and data files related to ongoing monitoring of the 2007 Anaktuvuk River Fire (on the north slope of the Brooks Range in Alaska). Community members reside across multiple agencies or retired, and need a common, easily accessed platform to share information. Six user accounts were created in conjunction with this community (a number of community members already had FRAMES accounts).
- **Boreal Fire History Community** – This community was developed for community members to share files and information relating to the JFSP project "Compiling, Synthesizing and Analyzing Existing Boreal Forest Fire History Data in Alaska." Community members are currently using document sharing (in part for sharing datasets), calendar and task capabilities, and have access to announcement and discussion capabilities. Community members are spread across multiple agencies and universities, and a FRAMES collaboration community has streamlined file sharing and facilitated project planning.
- **Fire Activity And Emissions Tracking System (FAETS) Community** – On June 24-25, 2008 in Atlanta, Georgia 30 people from 23 different state and federal agencies and 2 private organizations met to discuss the construction of system to aid state forestry agencies

SERVICES: Collaboration/Communities

in managing daily fire activity and supplying data for assessing air quality impacts from wildland fires. This project has come to be known as the Fire Activity And Emissions Tracking System (FAETS) and this community was set up to coordinate the efforts of all partners engaged in this activity.

- **Fire and Aquatic Ecosystem Synthesis (FAES) Community** – Managing the balance between aquatic resources, wildfire, and fuel conditions has always been difficult, and is becoming further complicated by changes in climate that alter both aquatic ecosystems and wildfire characteristics. An important question is how to expect the changing nature of fire in the landscape and shifting management responses to interact with the changing hydrologic and aquatic systems? A team of 16 scientists are exploring this question and are using this community to coordinate their efforts. Together these scientists have recognized the need to produce an updated review and synthesis of how fire affects aquatic ecosystems, how it interacts with land, fuel, and fire management decisions, and how this all fits into the context of a changing climate.
- **Fire History Analysis and Exploration System (FHAES) Working Group** – The goal of FHAES project is to enhance and / or redevelop components of the FHX2 software program, developed by Henri Grissino-Mayer, so that they are web-based, user friendly, and easily accessible to a broad range of users on the Internet. An advisory group guides the direction of these efforts and staff from NOAA's National Climatic Data Center, Paleoclimatology Branch is responsible for implementing projects. This community serves to help coordinate these activities.
- **FRAMES Cataloging Community** – This community serves FRAMES staff involved in the cataloging of resources in the FRAMES RCS.
- **FRAMES Development Community** – This community serves FRAMES staff and all partners who are developing or maintaining websites that are hosted by FRAMES. This community is a means of communicating to all who are a part of the FRAMES network.
- **FRAMES Governance Community** – This community was set up specifically for the FRAMES Interim Steering Committee, the new partnership between University of Idaho, University of Montana, and the USFS Rocky Mountain Research Station including the Fire Sciences Lab in Missoula, MT and the Research, Development, and Applications (RD&A) unit in Boise, ID and FRAMES Staff and NBII Support. This site is expressly for these parties to use as FRAMES moves from research project to implementation as a national program. As FRAMES governance is reestablished this site needs to be revisited and a determination made whether or not to use it.
- **Idaho National Fire Plan Community** – Idaho has developed an extensive network of individuals and groups actively working on wildfire mitigation. Included are county emergency staff, planning and zoning officials, county commissioners, rural fire chiefs, state, federal, and tribal fire managers, interest groups, community leaders, and citizens. The Idaho National Fire Plan Community was used as a staging ground as the Idaho Firewise community was developed. The Idaho Firewise website is still under development. After it is up there may not be a need for this site.
- **JFSP IFT-DSS Proof of Concept Testing Community** – This community was developed to provide a forum to discuss the tools and issues related to the new Interagency Fuels Treatment Decision Support System (IFT-DSS), being developed by Sonoma Technology Inc. (a private contractor), for the JFSP. Fifty-six user accounts were developed in conjunction with this community.

Let us show you how we can support your wildland fire-related work through FRAMES.

2009 Accomplishments: SERVICES

SERVICES: Collaboration/Communities

- **National Interagency Fuels, Fire, and Vegetation Technology Team (NIFTT) Working Group** – NIFTT is chartered by the National Interagency Fuels Coordination Group (NIFCG) and was set up to help NIFCG develop and implement an effective interagency fuels management program to address risks related to severe fires in wildland-urban interface communities and to restore healthy ecological systems in other wildland areas. Specifically, NIFTT coordinates, develops, and transfers consistent, efficient, science-based fuel and fire ecology assessment tools and trainings. This community was set up to help the staff of NIFTT coordinate these efforts.
- **Partners File Sharing** – This community was recently set up for new FRAMES partners, so that they can share documents before they have a community of their own set up.
- **PNW Fire Consortium Community** – This community was developed for use by the Pacific Northwest Regional Consortium for Enhanced Fire Science Delivery and Adoption. It was designed primarily to share documents and calendars, in order to facilitate the establishment and management of the consortium. Thirty-one user accounts were created in conjunction with this community.
- **Portal Training Community** – The Portal Training Community is the community that first time users with a login will be directed to. It will contain all self-contained training materials that are relevant to the portal. The initial design will target first time users who are interested in the collaboration services available on the FRAMES intranet.
- **Wildland Fire Management RD&A Community** – This community was developed to enable document and calendar sharing by the members of the Wildland Fire Management Research, Development and Application team. The team is based out of Boise, Idaho, but most members telecommute from other locations, and are frequently traveling to support team activities. Therefore a centralized, web-based platform for file and calendar sharing supports day-to-day team activities. Eleven user accounts were created in conjunction with this community.
- **SA&I Program Collaboration Community** – This community was developed primarily to facilitate calendar-sharing between members of the USFS Rocky Mountain Research Station Science Application and Integration Program (SA&I) team. Five user accounts were created in conjunction with this community.
- **SRME Fire Consortium Community** – This community was developed for use by the Southern Rocky Mountain Ecoregion Fire Consortium. It was designed primarily to share documents and calendars, in order to facilitate the establishment and management of the consortium. Eight user accounts were created in conjunction with this community.
- **SW Fire Science Consortium Community** – This community was developed for use by the Southwest Fire Science Consortium. It was designed primarily to share documents and calendars, in order to facilitate the establishment and management of the consortium. Eight user accounts were created in conjunction with this community.
- **UI Cyberinfrastructure Community** – This community was set up to address the University of Idaho's Research Office initiative to develop research data management capacity. Now called, the Northwest Knowledge Network (NKN), this community supports collaboration and facilitation of the activities associated with the development of NKN.

SERVICES: Collaboration/Communities

- **Wildland Fire Science Partnership (WFSP) Community** – This community was set up just for the WFSP including the members of the Executive Board, Program Managers, and the program's coordinator that are from The University of Idaho, University of Montana, and the Forest Service's Rocky Mountain Research Station as well as USGS/NBII staff involved in FRAMES development. Over time this site will likely be used by the partnership to track collaborative projects its members are engaged in.



2009 Accomplishments: MARKETING

Marketing Materials and Presentations

In 2009, FRAMES purchased a 10' x 7' conference booth display structure and two 48" x 24" tabletop displays for workshops and other smaller meetings. Display content is tailored according to the target event, and during 2009 the booth display was utilized at two conferences and the tabletop displays were utilized at two workshops. In addition, FRAMES produced a number of marketing brochures that focus on different aspects of FRAMES.



Figure 14. FRAMES Table Top Display



Figure 15. FRAMES 10' Floor Display

Brochures developed during 2009 include: 1) a FRAMES general information brochure (with emphasis on the RCS), 2) three brochures about geographic fire portals (Alaska, Northwest and Southwest), and 3) a brochure highlighting the new Human Dimensions and Fire Social Sciences (HDFSS) partner site. Brochures created in previous years were also distributed: 1) FRAMES Partners, 2) FRAMES Collaboration services, and 3) the Southern Fire Portal.

Marketing Materials and Presentations



Figure 16. FRAMES and Partner Brochures

2009 Accomplishments: MARKETING
Marketing Materials and Presentations

In 2009, staff continued to work with partners and promote FRAMES in meetings, workshops, and conferences throughout the year. The following is a list of events that were attended by staff.

Table 2. Events attended by FRAMES Staff in 2009

2009 Date	Venue	Description
January 5-8	Denver, CO	Annual Meeting with USGS / NBII
January 9	Ft Collins, CO	Meeting with RMRS Station Director
January 26-27	Grangeville, ID	Idaho Firewise meeting
February 15-20	Corvallis, OR	Meeting with NACSE
March 10-13	Denver, CO	Workplan meeting with USGS / NBII
April 9-10	Boise, ID	Meeting with RD&A manager and WFSP coordinator
May 12-14	Boise, ID	Meeting with RD&A manager, JFSP Chair, and Water Center manager
June 4-6	Boise, ID	Implementation of FRAMES into RD&A including UI FRAMES, RD&A manager, and WFSP Coordinator; plus JFSP Manager
July 20-22	Boise, ID & Idaho Falls, ID	Meetings with NASF and INL
September 3-4	Missoula, MT	NIFTT Meeting
September 8-11	Missoula, MT	USDA Forest Service Reunion
October 14-15	Fairbanks, AK	Alaska Fall Fire Review
October 16	Fairbanks, AK	Alaska Fire Consortium Workshop
October 16-23	Albuquerque, NM	DataONE Meeting
November 10-15	Boise, Idaho Falls, Pocatello, ID	Meetings with INL, ISU, BSU, and state librarian
December 1-3	Savannah, GA	Association for Fire Ecology Conference
December 4	Savannah, GA	Southern Fire Exchange Workshop
December 13-16	Washington, DC	CNI Conference



Marketing Materials and Presentations

The list below shows the diversity of partners who are part of FRAMES. Many organizations are connected through partner sites hosted by FRAMES and through Intranet Collaboration Communities.

National Interagency Fuels Technology Team (NIFTT) Partners

Bureau of Land Management (BLM)
National Park Service (NPS)
USDA Forest Service (FS)
FS Missoula Fire Science Lab
Systems for Environmental Management (SEM)
US Department Of Interior (DOI) Bureau of Indian Affairs (BIA)
US Geological Survey (USGS)
US Fish and Wildlife Service (FWS)

Fire and Fire Surrogates Project (FFS) Partners

USDOI
University of California, Berkeley
University of California, Davis
FS Rocky Mountain Research Station
FS Region 5
USGS
FS International Programs
NPS
NPS, Redwood NP
NPS, SEKI
Auburn University
FS Southern Research Station
FS Forest Products Laboratory
Colorado State Forest Service
J. W. Jones Ecological Research Center
FS Missoula Fire Science Lab
University of Montana
FS Pacific Northwest Research Station
Colorado State University
Quincy Library Group
University of Idaho
FS Pacific Southwest Research Station
California Department of Forestry and Fire Protection
University of Arizona
Oregon State University
Yosemite National Park

Fire History Analysis and Exploration System (FHAES) Partners

National Oceanic and Atmospheric Administration (NOAA) Paleoclimatology Branch
FS Rocky Mountain Research Station
Laboratory of Tree-Ring Science
Rocky Mountain Tree-Ring Research
University of Arizona

Assessing Burn Severity Partners

University of Idaho
FS Rocky Mountain Research Station
FS Remote Sensing Applications Center (RSAC)
Joint Fire Science Program (JFSP)



2009 Accomplishments: MARKETING

Marketing Materials and Presentations

Idaho – National Fire Plan Partners

Idaho National Fire Plan Coordinator (shared USFS and IDL employee)
Idaho Department of Lands
Idaho Bureau of Homeland Security
Idaho State Fire Marshal
Idaho Department of Commerce and Labor
Idaho Governor's Office of Species Conservation
Nez Perce Tribe
Coeur d'Alene Tribe
Resource Conservation and Development Councils
Idaho Fire Chief's Association
Idaho Association of Counties
USDI Bureau of Indian Affairs
USDI Bureau of Land Management
USDI Fish & Wildlife Management
USDI National Park Service
USDA Forest Service

Northern Rockies Climate and Fire Partners

University of Idaho
FS Missoula Fire Science Lab
Aldo Leopold Wilderness Research Institute
JFSP

Fire Effects Monitoring and Inventory Protocol (FIREMON) Partners

FS Missoula Fire Sciences Lab
USGS
Systems for Environmental Management
JFSP

Fire Ecology Assessment Tool (FEAT)/FIREMON Integrated (FFI) Partners

National Interagency Fuel Coordination Group
NPS
FS Fire and Aviation Management
Systems for Environmental Management
Spatial Dynamics

Human Dimensions & Fire Social Sciences

US Forest Service Northern Research Station

JFSP Software Tools and Systems (STS) Study

Joint Fire Science Program (JFSP)

Wildland Fire Decision Support System (WFDSS)

US Forest Service
National Park Service
Bureau of Indian Affairs
Bureau of Land Management
US Fish and Wildlife Service

Marketing Materials and Presentations

Web - First Order Fire Effects Model (W-FOFEM)

UI
USGS / NBII
FS
Fire Modeling Institute (FMI)
Systems for Environmental Management (SEM)

Fire Research And Management Exchange System (FRAMES) Partners

FS Missoula Fire Science Lab
JFSP
USGS / NBII
FS Fire and Environmental Research Applications (FERA)
FS
FWS
National Association of State Foresters (NASF)
National Center for Landscape Fire Analysis
Cooperative Ecosystem Studies Unit (CESU)
FS Rocky Mountain Research Station
BLM
USGS/NBII Center for Biological Informatics (CBI)
Tall Timbers Research Station (TTRS)
NPS
FS Southern Research Station
FS Pacific Southwest Research Station
TNC
BIA
NOAA Paleoclimatology Program
FS Northeast Research Station
University of Idaho (UI)
University of Montana (UM)
Oregon State University (OSU)
BLM-Alaska Fire Service
Forest Encyclopedia Network (FEN)
National Fire Plan (NFP)
Southern Regional Extension Forestry (SREF)



2009 Accomplishments: MARKETING

Marketing Materials and Presentations



Figure 17. FRAMES Partner Sites



2009 Accomplishments: INFRASTRUCTURE

Infrastructure Overview

Overview

FRAMES infrastructure encompasses the underlying technological foundation and personnel that supports the management and movement of information, communication, and tools. FRAMES hardware infrastructure are hosted and maintained by the USGS NBII in Denver, CO. The hardware infrastructure for the Resource Catalog System (RCS) are hosted and maintained by the Oregon State University's Northwest Alliance for Computational Science and Engineering (OSU / NACSE). Responsibility to maintain FRAMES technology and content reside with USGS / NBII personnel as well as the FRAMES Staff. FRAMES is a work in progress. The total build-out of FRAMES includes 1) a data, document, and tool repository, 2) consolidation, visualization, and web-based analytical capabilities of spatial data in a Geographic Information Systems (GIS) framework, 3) linked spatial and non-spatial databases, 4) a framework for managing and accessing remote sensing data, 5) a model management system, 6) web-enabled communications and collaboration, and all of this 7) in a platform that provides for customization based upon user, community, and agency needs.

USGS / NBII Component

The USGS / NBII supports many aspects of the FRAMES program related to information technology needs in four main areas that include system administration, project scoping, customer support, and internal FRAMES projects.

For system administration, the USGS / NBII provides technical support for the overall system components that include the Portal server and GIS server administration plus the security, network, and documentation required by federal policies and regulations. Most of this work occurs at the Center for Biological Informatics (CBI) facility in Denver, Colorado with some contributions by staff in Reston, Virginia. CBI hosts and maintains approximately 90 servers (Linux and Windows servers), 8 network devices, and 20 workstations with an estimated 72 TB raw storage capacity, 60 slot tape library, and about 102 websites with approximately 3300 named users. The system receives about 40 million hits including crawlers and more than 1 TB bandwidth consumed (December 2009). FRAMES represents an integral part of this architecture and system. For 2009, approximately 350 hours were spent on FRAMES related system administration activities that ensured that FRAMES was online with up to date hardware and software and met all federal security requirements. Many of the security requirements have been incorporated into the USGS / NBII business process, which includes staff time contributed to FRAMES each year. Also, in 2009 the final two custom portlets for NIFTT and FIREMON data were updated to meet current security requirements.

One of the significant achievements in 2009 was attaining certification and accreditation for the NBII IT System that complies with Federal Information Security Management Act (FISMA) security mandates. Every three years, the USGS and its 12 major IT systems of which NBII is one goes through this rigorous process. FRAMES represents one of the components of the overall NBII IT system and was part of the review process.

The project scoping element focuses on potential activities that may evolve into larger projects in future years. This category includes USGS / NBII staff time to provide technical input and review on the possible activities to address any hardware or software issues, standards needed, or time estimates for those projects. In 2009, approximately 40 hours were spent working on various aspects of scoping the following projects: National Prescribed fire and smoke tracking system; National Coalition of Prescribed Fire Councils; Intelligent Decision Services; Fire Effects Information System; National Integrated Drought Information System; and Idaho National Fire Plan.

2009 Accomplishments: INFRASTRUCTURE

Infrastructure Overview

Customer support addresses a variety of requests that must be resolved by USGS / NBII staff such as releasing new communities on FRAMES, updating header files, investigating navigation/user interface issues, and many other tasks. In 2009, more than 200 requests were submitted to support@nbii.gov, the mechanism for reporting support questions related to FRAMES.

The internal FRAMES project element focuses on specific projects identified in the annual planning process that will streamline workflow processes or enhance the user experience. In 2008, the support requests indicated that many key staff needed to upload documents or posting a link on a public website on FRAMES. In 2009, the USGS / NBII in collaboration with FRAMES staff identified requirements, developed, and implemented a URL Creator / File Upload Tool for use by FRAMES staff as well as key partner contributors. The URL Creator / File Upload Tool was released in March 2009 and improved workflow efficiencies throughout the year. USGS / NBII staff also contributed to search enabling FRAMES content in collaboration with the OSU / NACSE and FRAMES staff. The data and information available through the RCS was exported to the NBII for crawling into the FRAMES search index that improved user search results. Another project involved some additional work was completed on the NIFTT Training Sign Up Portlet, which is available through the FRAMES site. Also, work was initiated in 2009 to migrate the Fire Enhanced Runoff and Gully Initiation Model (FERGI) Tool to an updated GIS server, which will also include an enhanced feature that will enable multiple users to be accessing the tool simultaneously.

OSU / NACSE Component

NACSE hosts and maintains version 2.0 of the FRAMES Resource Cataloging System (RCS) on the NACSE servers in Corvallis, Oregon.

NACSE working files, database, and web services are maintained on NACSE's server farm of multi-processor SunFire and Dell PowerEdge servers. All servers are connected directly to the campus backbone and NERO. NACSE maintains separate machine environments for development, test, and production servers, allowing the development and testing of new software components without affecting the performance or stability of production-level services. The primary relational database management systems employed are PostgreSQL, MySQL, Oracle, and Sybase. A major portion of NACSE research is in support of distributed and federated databases that are integrated virtually to present the appearance of a single, homogeneous database. Additionally, NACSE is a participant in one of several shared computational clusters supported by the College of Engineering for specific research groups in colleges across the OSU campus. The system is built on Sun's Grid Engine with commodity hardware and freely available software. Over 160 CPUs operate within a heterogeneous mix of dual-processor servers including Dell PowerEdge 1850, Dell PowerEdge 2650, HP



Infrastructure Overview

Proliant DL145, and most recently Sun X4100 units. Software is based on Redhat Enterprise Linux, with MPI to support message-passing parallelism. Each system is connected to the public network via gigabit Ethernet, and a second MPI communication network is built on dedicated gigabit hardware.

NACSE staff are highly experienced in the design and implementation of complex web-based applications, particularly those that involve querying and display of scientific data. In the past several years, NACSE staff have successfully developed several web-based applications specifically for NBII, with features such as data entry capability for model runs, data analysis, text-based and GIS-based display of query results, and various visualizations of output data.

In 2009, FRAMES staff used the RCS data entry application to move large sets of existing data into the database. NACSE worked with FRAMES staff to address issues within the system and also helped document the user interface experience to contribute to developing the requirements for the next version of the system. In 2009, NACSE also developed a web-based query interface that provides simple customizable queries built from dropdown



2009 Accomplishments: INFRASTRUCTURE

Personnel

selection lists using database fields for query criteria. NACSE also developed an export tool system for harvesting data from the RCD database as XML as needed by USGS / NBII staff in developing additional tools for displaying data in the FRAMES portal. NACSE also contributed to creating a Help document to assist users.

Portal Software Update

The FRAMES platform uses the Oracle Web Suite portal software for its online presence. In June of 2008, the BEA portal technology AquaLogic suite of software that provided much of the information technology (IT) infrastructure for both NBII and FRAMES merged with Oracle. According to the CEO of Oracle, "...the addition of BEA will accelerate innovation by bringing together two companies with a common vision of a modern service-oriented architecture (SOA) infrastructure." "Together, Oracle and BEA will provide will provide a series of complementary and well-engineered middleware products, allowing customers to more easily build, deploy, and manage applications in a secure environment."

In 2009, USGS / NBII began the process of upgrading NBII sites as well as FRAMES. FRAMES and USGS / NBII staff identified several projects that will better prepare FRAMES for the upgrade in 2010. These include reengineering the notices posting system and the browse portlets. Another key activity will involve eliminating components no longer needed and archiving legacy information prior to the initiation of the portal upgrade.

Personnel: University of Idaho

Penny Morgan, at the University of Idaho, CNR, FOR, is the Principal Investigator and also the lead faculty member of FRAMES.

Two permanent State Board of Education appointed positions (contingent on continued federal funding) have been created at the University of Idaho, College of Natural Resources, Forest Resources Department. The FRAMES Program Manager and FRAMES Project Manager positions are filled by Greg Gollberg and Diana Olson, respectively. Two other full-time staff positions, but without full benefits, also exist. They are a FRAMES Content Support Specialist (Lynn Wells) and FRAMES Graphics & Interface Design (John Black).

Two part-time staff positions, again without benefits, were created and filled during 2009. They are both Content Support Specialist positions, and were filled by Jennifer (McCormick) Lagadinos and Michael Tjoelker. Heather Heward, NIFTT Training USDA Forest Service and Fire Use Module Liaison, CNR, FOR; and Chad Hoffman, 401 Series Coordinator CNR, FOR all are stationed at the University of Idaho and have a working relationship with FRAMES. Morgan Pence works with the Wildland Fire RD&A and is a liaison between the RD&A and FRAMES.

Personnel: USGS / NBII

Other support exists with USGS / NBII personnel including Jenifer Carlino, Janice Gordon, Julie Recker and Jeff Falgout. Additional portal support was arranged through USGS / NBII for Kelly Lotts at the Big Sky Institute, Montana State University.

Personnel: OSU / NACSE

Contracts for support and to build the RCS, plus the FOFEM project included staff from Oregon State University, NACSE. NACSE staff support includes Sherry Pittam and Ben Steinberg.

Infrastructure Overview

Dollars and Sense

FRAMES continues to be funded through line item funding for the Wildland Fire Science Partnership (WFSP). This is the primary funding source for FRAMES. New funding to assume administration of the NIFTT program began at the end of the calendar year. With these two sources of dollars FRAMES annual funding will exceed a million dollars. FRAMES will continue to look to diversify its funding through efforts to provide custom services to new partners. FRAMES will also work with WFSP partners to increase funding to the partnership including the RMRS, University of Montana, and the University of Idaho. Also, in kind support from many organizations helps FRAMES fulfill its mission each year.

FRAMES Projects & Initiatives 2010 and Beyond

Primary activities for FRAMES in 2010 will be to:

1. Increase the content holdings within and maintain Version 2.0 of the Resource Cataloging System (RCS) by working with content providers including researchers and managers.
2. Better integrate the activities of FRAMES and NIFTT.
3. Seek a stable administrative home for FRAMES & NIFTT within the Wildland Fire Management RD&A or the SAI.
4. Develop requirements for Version 3.0 of the RCS.
5. Redesign FRAMES site after the portal upgrade.
6. Continue to support existing partners and seek new partners to complement the existing architecture of FRAMES including Subject Areas, Geographic Areas, and Partners Sites.



2009 Accomplishments: INFRASTRUCTURE
APPENDIX A (Funding Report 2002-2009)

FRAMES Funding Chronology 2002 - 2008

Table 3. FRAMES Funding

Projects funded in 2002	Date	Funded by	UI Amount	Partners	Earmark Funding
Fire Research And Management Exchange System (FRAMES)	27-Jun	RMRS, Missoula Fire Lab	\$30,000		
Projects funded in 2003					
A New Wildland Fire Tools Database and Security Protocols for FRAMES	9-Jun	RMRS, Missoula Fire Lab	\$40,000		
FRAMES Infrastructure Expansion Project I	9-Jun	Congressional Earmark	\$199,000		\$199,000
An Expert System and New Web Interface for Tools on FRAMES	4-Nov	JFSP	\$99,475		
Projects funded in 2004					
Development of a Training Course for FRCC Assessment	25-Feb	NPS Pacific NW-CESU	\$39,230		
Development of a Training Course for FRCC Assessment		NPS Pacific NW-CESU	\$73,794		
A Continuation of the FRAMES Infrastructure Expansion Project I	22-Mar	Congressional Earmark	\$197,000		\$197,000
An Information Portal for Fire Science and Management in the Southern Region	1-Jun	JFSP	\$117,509	\$380,254	
Projects funded in 2005					
FRAMES Infrastructure Expansion Project II	16-Aug	Congressional Earmark	\$97,000	\$100,000	\$197,000
Provide access for FERGI into the FRAMES portal	31-Jul	RMRS, Boise Aquatics Lab	\$2,000		
Projects funded in 2006					
FRAMES Infrastructure Expansion Project III	29-Mar	Congressional Earmark	\$129,170	\$214,830	\$344,000
Development of a 5-year Strategic Plan for FRAMES	11-Jul	NFP		\$20,000	
		USGS/NBII		\$20,000	
Development of a Training Course for FRCC Assessment	?	NPS Pacific NW-CESU	\$20,000		
Projects funded in 2007					
Maintenance and Development of FRAMES	25-Jun	Congressional Earmark	\$223,950	\$124,050	\$348,000

APPENDIX A (Funding Report 2002-2009)

Table 3. FRAMES Funding Cont.

Projects funded in 2008	Date	Funded by	UI Amount	Partners	Earmark Funding
Ongoing Maintenance and Development of FRAMES	30-Jul	Congressional Earmark	\$349,665	\$289,716	\$639,381
Fire Regime Condition Class (FRCC) Training Delivery and Registration	30-Jul	NIFTT	\$13,765	\$4,148	
Grand Total of Earmark Funding					\$1,924,381
Projects funded in 2009					FS Funding and DOI
Ongoing Maintenance and Development of FRAMES Year 2	20-Aug	Funding to WFSP from FS	\$481,500		
FRAMES Support	20-Aug	USGS/NBII/ NACSE		\$169,098	\$650,598
Developing comprehensive curricula for teaching and applying fuels, fire, and vegetation management technology	8-Sep		\$117,119	\$412,381	\$529,500
Grand Total of FS and DOI Funding					\$1,180,098
Totals			\$2,230,177	\$1,734,477	\$3,104,479
All Year Funding To FRAMES				\$3,964,654	

2009 Accomplishments: INFRASTRUCTURE

APPENDIX B: FRAMES Strategic Plan 2007-2012

FRAMES: Technology in Support of Wildland Fire Research and Management

The Fire Research and Management Exchange System (FRAMES) supports wildland fire and natural resource professionals and policymakers through an on-line informatics system. FRAMES utilizes enterprise portal technology to promote science delivery and technology transfer at a national level. Resources including data, documents, tools, notices, and web pages are publicly available through <http://frames.nbii.gov>. FRAMES can host resources, link to them through its cataloging system, or provide a common view of resources (e.g., databases) that are remotely distributed. Access to these resources and other content can be customized for logged in users. Logged in users create and edit content that may or may not be publicly available. A suite of collaborative services including document management and sharing, threaded discussions, project and task management, and calendars are available to content developers and other logged in users. FRAMES is a collaborative effort to produce an integrative system for connecting the tools, information, and people who are part of the enterprise of wildland fire research and management.

The University of Idaho and the US Geological Survey's National Biological Information Infrastructure program (NBII) has led the development of FRAMES with guidance and support USDA Forest Service (FS), Joint Fire Science Program (JFSP), Bureau of Land Management (BLM), National Park Service (NBP) and other federal, state, and private agencies and organizations. Since 2003, FRAMES has received funding and in-kind support from many including the FS, USGS / NBII, JFSP, BLM, NPS, National Interagency Fuels Technology Team (NIFTT), Fire Regime Condition Class (FRCC) Working Group, National, US Fish and Wildlife Service, Tall Timbers Research Station (TTRS), The Nature Conservancy (TNC), and congressional earmarks. Funding has supported three areas of development: content, infrastructure, and services. Infrastructure and content development has been emphasized with some effort spent on developing services. In 2006 there was a dramatic increase in portal traffic, logged in users, content added, partners sites hosted by FRAMES, and the use of available services. Today, FRAMES is at a crossroads between prototype and an operational system for fire informatics. This transition presents new opportunities and challenges that require additional guidance and planning.

Beginning in 2007 and for each subsequent fiscal year, a FRAMES Project Management Plan will be developed by FRAMES staff, partners, and USGS/NBII personnel that will be reviewed by members of the FRAMES Interim Steering Committee (FISC). The FISC will continue to fill this role until such time as a permanent governance structure is established for FRAMES. Each annual plan will seek to further five-year goals established in the FRAMES Strategic Plan.

FRAMES Five Year Strategic Goals

1. Provide Content and Increase Content Utility. Develop a rich and usable base of content that is useful to wildland fire and natural resource professionals and policymakers.
2. Expand Services and Increase User Base. Identify opportunities to work with wildland fire and natural resource professionals (i.e., managers, practitioners, and researchers) to develop customized services that are complementary with FRAMES informatics architecture and that target their common technology transfer and science delivery needs.
3. Increase Name Recognition and Program Awareness: Develop marketing materials for outreach and cultivate relationships with agencies and potential FRAMES users and contributors.

APPENDIX B: FRAMES Strategic Plan 2007-2012

4. Maintain and Upgrade the Infrastructure. Build a technological infrastructure that can support wildland fire and fire-related informatics.
5. Ensure Financial Support. Determine staffing requirements and develop a sustainable system of financial support to ensure that FRAMES remains viable.
6. Provide Responsive Governance and Management. Establish a long-term plan for governance and accountability for the management and implementation of FRAMES.

FRAMES makes the following commitments to the larger community of fire policymakers, managers, researchers, and practitioners. We will be mission centered. We will continuously stay focused on our core mission, goals, and strategic actions. We will focus on excellence and undertake all activities at the highest levels of distinction. We will stay current on developments in the fire community and informatics. We will be strategic in our partnerships. We will seek to measure our progress and work with sound metrics, learn from the results, and seek improvement as a result.

Members of the FRAMES Interim Steering Committee (FISC)

Table 5. FRAMES Steering Committee

Mark Beighley	Director, Office of Wildland Fire Coordination, US DOI
Erik Berg	Assistant Program Coordinator, Terrestrial, Freshwater, and Marine Ecosystems, USGS
Mike Hilbruner	National Program Leader Fire Systems Research, USDA FS
Kate Kase	National Program Coordinator for Biological Informatics, USGS / NBII
Steven Daley Laursen	Dean, College of Natural Resources, University of Idaho
Tim Sexton	Fire Use Program Manager, USDA FS
Tom Zimmerman	Manager Research, Development, and Applications (R,D&A) Program, RMRS USDA FS



